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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/990,797 | 11/14/2001 | Tadano Hiroyuki | (70904) 56688 | 3090 |
| 21874 | 7590 | 04/07/2004 | EXAMINER | |
| EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205 | | | PYO, KEVIN K | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2878 | |

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 09/990,797 | Applicant(s) HIROYUKI ET AL. | |
| | Examiner Kevin Pyo | Art Unit 2878 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Specification

1. The disclosure is objected to because of the following informalities: On page 29, line 22, "OX" should be changed to --OZ--.

Appropriate correction is required.

Claim Objections

2. Claims 19, 21, 23 and 24 are objected to because of the following informalities:
Claims 19, 21, 23 and 24 recite "said light separating means" in line 2. It should be changed to --said light beam separating means--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention..

Regarding claims 1, 2, 10 and 11, it is unclear how and in what manner the limitations of "detecting focal point dislocation ... a smallest beam diameter" of claims 1 and 10, and "detecting focal point dislocation ... a numerical aperture of said objective lens" of claims 2 and 11 are accomplished. It appears that the specification only describes obtaining a focus error signal with respect to areas created by dividing the effective diameter of reflection light of beam spot into three by the radius corresponding to a value range including the extreme value of curve

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representing wavefront, but does not disclose how the recited limitations of “detecting focal point dislocation” of claims 1, 2, 10 and 11 are achieved. In addition, it is unclear what elements are utilized to accomplish the recited detection of focal point dislocation.

Regarding claims 5 and 6, it is unclear how the limitation of “detecting spherical aberration ... a third focus error signal” is achieved since the specification only describes a way of detecting the spherical aberration using the first focus error signal.

4. Claims 5-7, 14-16, 18 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 5 and 14, claim 5 recites the limitation “the separated light beam is obtained ... a diameter larger than a diameter equivalent with 85% of the light beam effective diameter ... a diameter smaller than a diameter equivalent with 60% of the light beam effective diameter ... the numerical aperture of said objective lens”. These limitations of “larger than” and “smaller than” of claim 5 are inconsistent with the limitation of “the light beam of the 60% to 85% region of the light beam effective diameter” of claim 3, on which claim 5 depends.

Claim 14 is rejected due to the reason similar to that of claim 5.

Claim 18 recites the limitation “said spherical aberration detecting means” in lines 8-9. There is insufficient antecedent basis for this limitation in the claim.

Claims not specifically mentioned above are rejected by virtue of their dependency on a rejected claim.

No patentability based on an art against claims 5-7, 14-16 and 24 is determined at this time since the intended scope of the claim is unclear.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4, 10-13, 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Maeda et al (6,320,699).

Regarding claim 10, as far as the claim is understood, Maeda et al shows in Figs.1 and 11, the following elements of applicant's invention: a) a light source (1); b) a converging optical system (4) for converging, onto a recording medium (5), a light beam emitted from the light source; and c) a focal point dislocation detecting means (9, 12) for detecting focal point dislocation of the converging optical system in accordance with, among light beams that have passed through the converging optical system, a light beam that corresponds to an extreme value of a curve and a region in a vicinity of the extreme value (two peak regions of the curve shown in Fig.11), where the curve represents a wavefront of such a state that an image point, at which the light beam has a smallest beam diameter, is formed on an information recording layer of an optical recording medium (col.9, lines 44-58; the curve of Fig.11 represent a distribution of wavefront aberration caused by the thickness error of the optical disc substrate after the

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correction of the focus error, wherein the horizontal axis indicates a radial position on the pupil of an objective lens and the vertical axis indicates the amount of wavefront aberration).

Regarding claims 11 and 13, as far as the claim is understood, Maeda et al discloses that the value to a range between 0.6 and 0.85 of a numerical aperture is set for an objective lens (col.1, lines 29-30; col.9, lines 53-55). It is inherent that the recited range of a light beam effective diameter corresponds to a numerical aperture of the objective lens of Maeda.

Regarding claim 12, as far as the claim is understood, Maeda et al discloses light beam separating means (3, 8) and a signal generating means (9, 12) for generating a focus error signal (col.6, lines 30-49).

Regarding claim 17, the limitation therein is disclosed in col.10, lines 66-67.

Regarding claim 18, as far as the claim is understood, Maeda et al discloses focal point dislocation compensating means (13, 15) and spherical aberration compensating means (101, 102).

Regarding claims 1-4, the method steps recited therein are inherently disclosed by the device of Maeda et al.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al in view of Sakai (6,339,562).

Regarding claims 19, 21 and 23, although Maeda et al does not specifically mention the use of a hologram as light beam separating means, it is well known in the art as shown by Sakai (Fig.1) to utilize a hologram in an optical pickup device in view of effectively separating light beams as desired, and it would have been obvious to one of ordinary skill in the art to utilize a hologram in Maeda et al in view of the desire to achieve the effective performance of separating light beams.

Regarding claims 20 and 22, the limitations therein are shown in Figs.1 and 3 of Sakai.

9. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al.

Regarding claims 8 and 9, the specific scheme utilized for detecting focus error would have been obvious to one of ordinary skill in the art in view of design requirements.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Pyo whose telephone number is (571) 272-2445. The examiner can normally be reached on Mon-Fri (with flexible hour), First Mon. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin Pyo
Primary Examiner
Art Unit 2878

Pkk
4/3/04